

Listing and Amendments to the Claims

This listing of claims will replace the claims that were published in the PCT Application.

1. (currently amended) A method (~~200~~) for encoding video signal data for an image block, the method comprising:

receiving(~~212~~) a substantially uncompressed image block;

block matching (~~214~~) the image block in correspondence with at least one particular reference picture while excluding non-optimal search points in accordance with a comparison of a normalization of the image block pixels against a normalization of the reference picture pixels;

computing (~~216~~) motion vectors corresponding to a difference between the image block and the at least one particular reference picture; and

motion compensating (~~218~~) the at least one particular reference picture in correspondence with the motion vectors.

2. (currently amended) A method (~~200~~) as defined in Claim 1 wherein computing motion vectors comprises:

testing within a search region for displacements within a pre-determined range of offsets relative to the image block while excluding non-optimal search points in accordance with a comparison of a normalization of the image block pixels against a normalization of the reference picture pixels;

calculating at least one of a sum of the absolute difference, a sum of the square difference, and a mean squared error of each pixel in the image block with a motion compensated reference picture; and

selecting the offset with the lowest calculated sum of the absolute difference, sum of the square difference, or mean squared error as the motion vector.

3. (currently amended) A method (~~200~~) as defined in Claim 1 wherein block matching comprises:

storing a normalization of the current picture; and

reusing the stored normalization when the current picture is used as a reference picture for coding another picture.

4. (currently amended) A method ~~(200)~~ as defined in Claim 1 wherein block matching comprises:

storing a normalization of the smallest block size; and

reusing the stored normalization for larger block sizes.

5. (currently amended) A method for processing video signal data for an image block, the method comprising encoding ~~(200)~~ as defined in Claim 1 and decoding ~~(300)~~, the decoding comprising:

receiving ~~(312, 314)~~ at least one reference picture index with the data for the image block, each corresponding to a particular reference picture;

retrieving ~~(318)~~ a reference picture corresponding to each of the received at least one reference picture index; and

motion compensating ~~(320)~~ the retrieved reference picture to form a motion compensated reference picture.

6. (currently amended) A method ~~(200, 300)~~ as defined in Claim 5, further comprising adding the motion compensated reference picture to the data for the image block to predict the image block.

7. (currently amended) A method ~~(200, 300)~~ as defined in Claim 6, further comprising storing the predicted image block as a reference picture for future retrieval.

8. (currently amended) A method ~~(200, 300)~~ as defined in Claim 5 wherein the video signal data is streaming video signal data comprising block transform coefficients.

9. (currently amended) A video CODEC comprising a video encoder ~~(400)~~ as defined in Claim 1 and a video decoder ~~(400)~~ for decoding video signal data for an image block and at least one particular reference picture index to predict the

image block, the decoder comprising a motion compensator ~~(460)~~ having an output for determining a block corresponding to the particular reference picture index.

10. (currently amended) A video CODEC ~~(100, 400)~~ as defined in Claim 9, further comprising a variable length decoder ~~(410)~~ in signal communication with the motion compensator ~~(460)~~ for providing the particular reference picture index to the motion compensator.

11. (currently amended) A video CODEC ~~(100, 400)~~ as defined in Claim 9 wherein the motion compensator ~~(460)~~ is for providing motion compensated reference pictures responsive to the fast search block motion estimator ~~(180)~~.

12. (currently amended) A video CODEC ~~(100, 400)~~ as defined in Claim 9 wherein the video signal data is streaming video signal data comprising block transform coefficients.

13. (currently amended) A video encoder ~~(100)~~ for encoding video signal data for an image block relative to at least one particular reference picture, the encoder comprising a fast search block motion estimator ~~(180)~~ for providing motion vectors corresponding to the at least one particular reference picture, the motion estimator comprising a fast search block matching portion for performing fast search block matching while excluding non-optimal search points in accordance with a comparison of a normalization of the image block pixels against a normalization of the reference picture pixels, the fast search block matching portion having an output responsive to the at least one particular reference picture.

14. (currently amended) A video encoder ~~(100)~~ as defined in Claim 13 wherein the fast search block matching portion comprises at least one of a data reuse portion and a successive elimination portion.

15. (currently amended) A video encoder ~~(100)~~ as defined in Claim 13 wherein the fast search block matching portion comprises a data reuse portion adapted to store the normalization of the current picture and reuse the stored normalization when the current picture is used as a reference picture for coding another picture.

16. (currently amended) A video encoder ~~(100)~~ as defined in Claim 13 wherein the fast search block matching portion comprises a data reuse portion adapted to store the normalization of the smallest block size and reuse the stored normalization for larger block sizes.

17. (currently amended) A video encoder ~~(100)~~ as defined in Claim 13 wherein the fast search block matching portion comprises at least one of a sum of the absolute difference calculator, a sum of the square difference calculator, and a mean squared error calculator for performing normalization.

18. (currently amended) A video encoder ~~(100)~~ as defined in Claim 13, further comprising a reference picture store ~~(170)~~ in signal communication with the fast search block motion estimator ~~(180)~~ for providing the at least one particular reference picture and a corresponding particular reference picture index.

19. (currently amended) A video encoder ~~(100)~~ as defined in Claim 18, further comprising a variable length coder ~~(140)~~ in signal communication with the reference picture store ~~(170)~~ for encoding the particular reference picture index corresponding to the at least one particular reference picture.

20. (currently amended) A video encoder ~~(100)~~ as defined in Claim 13, further comprising a motion compensator ~~(190)~~ in signal communication with the fast search block motion estimator ~~(180)~~ for providing motion compensated reference pictures responsive to the fast search block motion estimator.